UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/075,865	02/13/2002	Jochen Peters	DE010032	9419

24737	7590	07/20/2005

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EXAMINER
SKED, MATTHEW J

ART UNIT	PAPER NUMBER
2655	

DATE MAILED: 07/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _05/13/05_.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-15_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-13_ is/are rejected.

7)☒ Claim(s) _14 and 15_ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _5/13/05_.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Response to Amendment

1.   The objection to the specification is withdrawn in view of the amendments filed

5/13/05.

2.   The objection to the claims is withdrawn in view of the amendments filed 5/13/05.

3.   As per the rejection under 35 USC 112, the applicant elects not to amend the

specification and asserts there is sufficient and consistent disclosure in the specification

for one skilled in the art to recognize and understand the principles of the invention

using the term orthogonal. However, the Examiner respectfully disagrees. The written

description must **clearly** redefine the claim term. Nowhere in the specification is it

clearly stated that the term "orthogonal" does not refer to the common definition but

rather to the principles of the invention. "Orthogonal" is a notoriously well known and

common term in mathematics, computer science and speech recognition that means

that two vectors are perpendicular. The use of this term to refer to scalars would be

highly confusing for one of ordinary skill in the art and would require a clear and explicit

redefinition of the term. For these reasons the rejection still stands.

Claim Objections

4.   Claims 14 and 15 are objected to because of the following informalities: the

claims contain numbers referencing the drawings.

    Appropriate correction is required.

Claim Rejections - 35 USC § 112

5.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter, which the applicant regards as his invention.

6.   Where applicant acts as his or her own lexicographer to specifically define a term

of a claim contrary to its ordinary meaning, the written description must clearly redefine

the claim term and set forth the uncommon definition so as to put one reasonably skilled

in the art on notice that the applicant intended to so redefine that claim term. *Process*

Control Corp. v. HydReclaim Corp., 190 F.3d 1350, 1357, 52 USPQ2d 1029, 1033 (Fed.

Cir. 1999). In claims 1-15, the claims use the term "orthogonalized" or refer to specific

values as "orthogonal". According to the specification, this intends for the iteration

values of free parameters to be calculated using a linear combination of desired

boundary values of different sets of attributes where one set of the desired boundary

values of attributes has a larger range. However, the accepted meaning for

"orthogonal" refers to vectors that are perpendicular and as such their dot products

would be equal to zero. The values in the claims referred to as orthogonal, however,

are not vectors and therefore cannot be described as orthogonal. The specification fails

to point out how these scalar values exhibit the qualities of orthogonality.

Claim Rejections - 35 USC § 101

7.   Claims 1-13 are rejected under 35 U.S.C. 101 because the claimed invention is

directed to non-statutory subject matter.

8.   Claims 1-13 are drawn to a mathematical algorithm, per se. Claims to processes

that do nothing more than solve mathematical problems or manipulate abstract ideas or

concepts are non-statutory. If the "acts" of a claimed process manipulate only numbers,

abstract concepts or ideas, or signals representing all of the foregoing, the acts are not

being applied to appropriate subject matter. Schrader, 22 F.3d at 294-95, 30 USPQ2d

at 1458-59. Thus, a process consisting solely of mathematical operations without some

claimed practical application is drawn to non-statutory subject matter. In this case, the

claims merely recite the steps of calculating a function, without any practical application

being recited.

Allowable Subject Matter

9.   Claims 1-15 are objected to as being dependent on a rejected base claim.

10.   The following is a statement of reasons for the indication of allowable subject

matter: Claim 1 recites the combination of calculating iteration values for free

parameters in the maximum-entropy speech model as a function of the previous

calculated iteration value and a specialized boundary value. This boundary value is

calculated as a linear combination of a desired boundary value for a specific attribute

and another desired boundary value for a group of attributes that have a larger range

than the first attribute.

11.   Berger et al. ("The Improved Iterative Scaling Algorithm: A Gentle Introduction")

teaches a method for calculating iteration values for free parameters in the maximum

entropy speech model as a function of the previous calculated iteration value and a

boundary value (IIS Algorithm, page 4). The boundary value, however, is only

calculated over one range of attributes (equations 6 and 7, page 3).

12.   Simons et al. ("Distant Bigram Language Modeling Using Maximum Entropy")

teaches a method for calculating iteration values for free parameters as a function of the

previous iteration value and a boundary value calculated over one range of attributes

(auxiliary function, page 787, 1st col., last paragraph to page 788, col. 1, 2nd paragraph).

13.   None of the prior art on record teaches or suggests calculating the boundary

value, used in the calculation of free parameters, from two desired boundary values

calculated over attributes of varying ranges. Therefore, it would not have been obvious

to one of ordinary skill in the art at the time of invention to modify the system of Berger

and Simons to arrive at the present invention.

14.   Claims 2-15 are allowable because they further limit the claim in which they refer.

Conclusion

15.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure. Peters et al. ("Compact Maximum Entropy Language Models")

teaches calculating the iteration values for free parameters as a function of the previous

boundary value and iteration value. Kneser et al. ("Semantic Clustering for Adaptive

Language Modeling") teaches clustering attributes in a vocabulary into classes in an

adaptive language model. Berger et al. ("A Maximum Entropy Approach to Natural

Language Processing"), Mikheev ("Feature Lattices for Maximum Entropy Modeling"),

and Greiff et al. ("The Maximum Entropy Approach and Probabilistic IR Models) teach

alternate methods for calculating the iteration values for free parameters in a maximum-entropy model.

16.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.
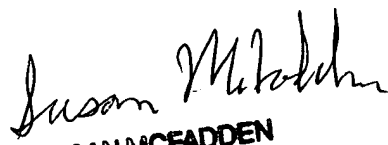
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J. Sked whose telephone number is (571) 272-7627. The examiner can normally be reached on Mon-Fri (8:00 am - 4:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on 571-272-7582. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MS
07/11/05

SUSAN MCFADDEN
PRIMARY EXAMINER